

REMARKS

This is in response to the Office Action mailed on November 20, 2007, in which claims 1-28 were pending. Claims 1-4, 6-10, 12-19 and 24-28 were rejected as obvious over Lehtonen in view of Bautista. Claims 5, 11 and 20-23 were rejected as obvious over the Lehtonen/Bautista combination further in view of either Stougaard or Ernst. Independent claims 1 and 26-28 are amended to more clearly define the invention. As explained further below, all of claims 1-28 are in condition for allowance, and reconsideration and notice to that effect are respectfully requested.

As noted in the background of the present application, a “widely practiced means of binding oxygen is the use of the enzyme glucose oxidase, in combination with a suitable glucose source, if necessary”, and “an appropriate amount of catalase enzyme has been used to break down the peroxide”. See application at page 3, line 19 – page 4, line 3. The present invention involves a realization that failure of such prior art glucose oxidase/glucose/catalase compositions was likely due to changing pH within the bag or sachet, and the invention of adding a dry buffering agent (preferably sodium bicarbonate) to help maintain pH during enzyme activity for maximum oxygen scavenging efficiency of the enzyme/energy source composition. Further, the present application notes that “use of a buffer to stabilize a liquid glucose oxidase system during storage is described in European patent EP0418940, it does not address oxygen removal or buffering of the system during enzyme activity.” Application at page 5, line 5-8. To clearly distinguish over any use of buffering agents in liquid compositions which may or may not result in maintaining pH during enzyme activity, the present invention is limited to dry forms.

Claims 1-4, 6-10, 12-19 and 24-28 were rejected as obvious over Lehtonen in view of Bautista. As noted in the Office Action, Lehtonen teaches the type of prior art glucose oxidase/glucose/catalase oxygen binding composition discussed in the background of the application. Specifically, Lehtonen teaches the use of an organic oxygen scavenging enzymatic composition which can be either dry or wet. In the wet form, the Lehtonen composition is a “mixture of the enzymes glucose oxidase and catalase with water, buffering agents or stabilizers and other enzymes or glucose if needed”. Col. 5, line 53-55. In the dry form, the Lehtonen composition is “the mixture of enzymes with a carrier, such as starch, talc, cellulose or other inert solid material”, and “glucose is

also added". Col. 5, lines 57-59, 65. That is, Lehtonen expressly considers the use of "buffering agents" for the liquid form of its composition, but does not disclose or suggest the use of any "buffering agent" for the dry form of its composition. Further, while noting that enzyme activity is highly dependent upon pH, Lehtonen does not appear to identify any ingredients for maintaining pH during enzyme activity, but merely suggests varying the levels of enzyme used and the relative amounts of glucose oxidase to catalase. Col. 7, line 11-18. Accordingly, the Office Action well noted, "Lehtonen et al. is however silent regarding the non aqueous dry buffering agent."

Against this background of Lehtonen showing the admitted prior art discussed in the background section but not correctly identifying the pH problem or proposing Applicant's non aqueous dry buffering agent solution, the Office Action combines Bautista with Lehtonen. Bautista teaches an antimicrobial composition for food products involving an acidifying reagent (citric acid, ascorbic acid, sorbic acid, tartaric acid, cream of tarter, fumaric acid, lactic acid, malic acid, acetic or combinations thereof) with a neutralizing system which may be sodium bicarbonate. The acidifying reagent is active during a storage period for the food to keep the pH low such as a pH of from 3 to 5. Col. 4, lines 43-50. The Bautista neutralizing system is "inactivated in said microbiologically sensitive conditions" (see Abstract) but is adapted to act on the acidifying reagent only on demand, such as during heating of the food product immediately prior to consumption. Col. 6, lines 39-50. The Office Action stated that it would be obvious to combine Lehtonen with Bautista because Bautista provides for increase shelf life, and improving the robustness of the food without negatively affecting flavor.

At the outset, Applicant notes that combining Lehtonen with Bautista would not result in the invention as defined by claim 1. In particular, claim 1 requires a suitable non-aqueous neutralizing agent for neutralizing acid produced during enzymatic consumption of said energy source and maintaining a stable pH during said enzymatic consumption. While Bautista teaches a neutralizing system to neutralize its acidifying reagent, Bautista takes particular steps to ensure that the neutralizing system is available only "on demand" – immediately prior to consumption of the food product. For instance, Bautista teaches encapsulation of the neutralizing agent such as in an oil or fat which is then solidified. By keeping its neutralizing system inactivated during the microbiologically

sensitive conditions, the Bautista neutralizing system would not be available for neutralizing acid produced during enzymatic consumption of said energy source and maintaining a stable pH during said enzymatic consumption. Claims 2-25 depend from claim 1, and claims 26-28 include similar limitations linking the neutralizing agent with the enzymatic activity. Because Bautista does not disclose or suggest making its neutralizing system available during enzymatic consumption of the energy source, the rejection of all these claims should be withdrawn.

Second, a worker skilled in the art would have no motivation to combine the low pH antimicrobial tactic of Bautista with the enzymatic tactic of Lehtonen. Lehtonen teach pH values all above 5 (see Tables 1 and 2), which are inconsistent with the low pH values of 3 to 5 of Bautista. Because pH cannot simultaneously have both values, a worker skilled in the art would realize that Lehtonen and Bautista are mutually exclusive schemes that cannot be used together. The rejection of all claims based upon combining Lehtonen with Bautista should be withdrawn.

Further, claim 1 is amended from a “comprising” claim to a “consisting essentially of” claim. This amendment clarifies that the present invention is not merely the addition somewhere else in the food product or packaging of the buffering agent coupled with separate use of the prior art glucose oxidase/glucose/catalase composition, which might haphazardly result in the buffering agent serendipitously “neutralizing acid produced during enzymatic consumption of said energy source and maintaining a stable pH during said enzymatic consumption”. For instance, the neutralizing system of Bautista is present for combining, immediately prior to consumption, with the acidifying reagent, which acidifying reagent prior to combining had been the primary ingredient for its antimicrobial purpose. Even if a worker skilled in the art were to combine Lehtonen and Bautista, and even if some of the neutralizing system of Bautista were to make its way free of encapsulation to “neutralize acid produced during enzymatic consumption of said energy source and maintaining a stable pH during said enzymatic consumption”, that would not result in the “consisting essentially of” invention as now claimed. Clearly the combination of Lehtonen and Bautista would still have an acidifying reagent present in significant amounts to perform the acidifying purpose, which is now contrary to the invention as claimed in amended claim 1. Claim 1, and all claims dependent thereon, should be allowed for this reason as well.

Claim 26-28 are not fully “consisting essentially of” claims, but instead include other limitations which further distinguish over the Lehtonen/Bautista combination. Claim 26 is directed at a “product”, which includes both the non-aqueous enzymatic oxygen scavenging composition and the foodstuff. Both are within a foodstuff package, with the non-aqueous enzymatic oxygen scavenging composition (comprising all three components) directly applied to the foodstuff within the package. This claim thus excludes the haphazardous combination of Lehtonen and Bautista, which would not disclose or suggest simultaneously applying both the Lehtonen and Bautista compositions directly to the foodstuff within the package. Claim 26 should be allowed for this reason as well.

Claim 27 is directed at the claimed composition disposed within a water permeable enclosure for direct contact with the food stuff. This would clearly exclude, for instance, the simultaneous, haphazardous use of Lehtonen and Bautista. A worker skilled in the art would have no motivation to place both the Lehtonen and Bautista compositions within the same water permeable enclosure for direct contact with the food stuff. Even if the worker considered the teachings of Ernst, a single Ernst enclosure would not be simultaneously filled with both the Lehtonen and Bautista compositions. If a worker did for some unknown reason seek to place both the Lehtonen and Bautista compositions within the same water permeable enclosure, the worker would definitely take the encapsulation steps taught by Bautista to ensure that the neutralizing agent was available for the acidifying reagent immediately prior to consumption of the food product, i.e., to ensure that the neutralizing agent was not exhausted by the acid produced during enzymatic consumption of said energy source. Claim 27 should be allowed for this reason as well.

Claim 28 is directed at a method including packaging said composition with said foodstuff within a container for said foodstuff, said composition thereby in direct contact with said foodstuff in said container. This is not disclosed or suggested by the combination of Lehtonen and Bautista, as the Bautista encapsulation would keep the neutralizing agent from direct contact with the foodstuff. Claim 28 should be allowed for this reason as well.

The application containing pending claims 1-28 is in condition for allowance. Reconsideration and notice to that effect is respectfully requested. The Examiner is invited to

contact the undersigned at the telephone number listed below if such a call would in any way facilitate allowance of the application.

The Commissioner is authorized to charge payment of any additional fees associated with this paper or credit any overpayment to Deposit Account No. 50-2998, Deposit Account Name Shewchuk IP Services.

Respectfully submitted,

SHEWCHUK IP SERVICES, LLC

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